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Comparison of the Effectiveness of Suffering Management Training and Emotion Efficacy Therapy on Life Suffering and Affective Capital in Individuals with Irritable Bowel Syndrome

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ABSTRACT

Patients with Irritable Bowel Syndrome (IBS) require not only medical treatment but also psychological interventions. Accordingly, this study aimed to compare the effectiveness of suffering management training and emotion efficacy therapy on life suffering and affective capital in patients with IBS. This research employed a quasi-experimental design with pretest, posttest, and follow-up phases along with a control group. The statistical population consisted of all IBS patients who referred to gastroenterology clinics in Isfahan during the winter of 2025. From this population, 60 patients were purposefully selected and assigned into three groups (each with 20 participants). The Perceived Suffering Scale (Schulz et al., 2010) and the affective Capital Questionnaire (Golparvar, 2016) were used to assess the dependent variables across the three time points. The two treatment groups each received 8 sessions of intervention lasting between 75 to 95 minutes, while the control group received no treatment. Data were analyzed using repeated measures ANOVA and Bonferroni post-hoc test via SPSS version 26. The results indicated that for both variables—life suffering and affective capital—there were significant differences between the suffering management training group, the emotion efficacy therapy group, and the control group ($p < .05$). Specifically, suffering management training was more effective than emotion efficacy therapy in reducing life suffering and enhancing affective capital. Given the effectiveness of suffering management training in alleviating life suffering and improving affective capital among IBS patients, it is recommended that this psychological intervention be implemented alongside medical treatments in clinical settings.

Keywords: Suffering management training, Emotion efficacy therapy, Life suffering, affective capital, Irritable Bowel Syndrome patients

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Introduction

Functional gastrointestinal disorders are among the most common and significant disorders affecting the digestive system, often causing numerous problems for patients, healthcare providers, and medical systems (1). The prevalence of Irritable Bowel Syndrome (IBS) varies across different societies. For example, according to data reported in comprehensive reviews and meta-analyses, depending on the geographic region, the prevalence of this disorder may range from 1.1% to 35.5%. It is emphasized that women seek treatment more often than men; therefore, in many studies, the prevalence ratio in women compared to men is reported as two to one or even higher (2). In general terms, IBS is classified as a functional gastrointestinal disorder, characterized by abdominal pain or discomfort occurring at least three days per month during the past three months, accompanied by at least two of the following: improvement with defecation, changes in the frequency of defecation, or changes in stool form (3).

There is limited knowledge regarding the etiology and pathophysiology of this disorder, and the primary cause remains unknown. However, factors such as genetic predispositions, small intestinal bacterial overgrowth (SIBO), immune system activation, and dietary habits have been proposed as the most likely contributors. At the same time, available evidence suggests that psychological problems may play a critical role in the onset or exacerbation of IBS. For instance, some studies indicate that a significant proportion of individuals with IBS have experienced psychological conditions such as depression, anxiety, or stress at some point in their lives (4).

Among the wide range of psychological variables potentially exacerbating and complicating the condition in IBS patients, perceived suffering—or "life suffering"—alongside emotional constructs such as affective capital, is notable (5, 6). Suffering refers to a state of sorrow and distress caused by events that threaten an individual's well-being in various ways and exert significant psychological pressure. Encountering a stressful, threatening, or destructive factor—whether real or perceived—elicits suffering in individuals, and this perception persists as long as the threat remains (7).

Suffering in life may manifest in several forms, including existential or ontological suffering in the form of a sense of lack of agency and freedom, or feelings of meaninglessness (8, 9); emotional and affective suffering expressed through various forms of mood disturbance, depression, or vague anxiety (3, 10); social suffering in the form of weak support networks and a sense of isolation (11, 12); and cognitive suffering expressed through distressing mental rumination and negative thought patterns. The presence of such suffering, especially in the context of a chronic illness like IBS, can significantly undermine the quality of life of affected individuals (13).

In addition to life suffering, variables such as affective capital can facilitate more effective coping with illness. affective capital, as a form of soft capital, refers to the experience of positive emotions and inner vitality that equips individuals with the capacity to engage in skill-based actions (14). This construct encompasses components such as positive affect, psychological energy, and happiness, which are associated with variables such as mental health, both positive and negative behaviors, quality of life, and interpersonal relationships (15-18). affective capital, by fostering an internal foundation of joy and hope, may enhance patients' capacity to adapt to challenging conditions (19).

Given the role of life suffering and affective capital in IBS patients, there is a need for interventions that focus on managing suffering and improving emotional regulation. One such intervention is suffering

management training, which aims to strengthen the psychological capabilities of patients by addressing various dimensions of suffering, including cognitive, emotional, existential, and social aspects (20-24). This training utilizes techniques such as mindfulness, logotherapy, cognitive restructuring, and coping skills.

In contrast, Emotion Efficacy Therapy (EET), which integrates elements from Acceptance and Commitment Therapy (ACT), Dialectical Behavior Therapy (DBT), and Cognitive Therapy, is considered a transdiagnostic treatment emphasizing emotional regulation, mindful acceptance, and identification of personal values (25). Emotion efficacy refers to an individual's belief in their ability to manage emotions, as well as the actual capacity to do so (26). Empirical evidence indicates that this approach is effective in reducing experiential avoidance and increasing distress tolerance across various populations (27, 28).

Despite the demonstrated effectiveness of both Emotion Efficacy Therapy and Suffering Management Training in various conditions, no study has yet compared the effects of these two therapeutic approaches on variables such as life suffering and affective capital in patients with IBS. This research gap highlights the need for a study that evaluates and compares the effectiveness of these interventions under identical conditions.

Accordingly, the present study was designed to answer the following question: "Is the effectiveness of suffering management training for patients with IBS different from that of emotion efficacy therapy in reducing life suffering and enhancing affective capital?" Posing this question aligns with the broader goal of developing more comprehensive treatments based on the emotional and cognitive needs of patients with chronic illnesses—particularly those with IBS—and is considered an important step toward improving their quality of life.

Methods and Materials

Study Design and Participants

The present study is a three-group quasi-experimental design including a group receiving Suffering Management Training for patients with Irritable Bowel Syndrome (IBS), a group receiving Emotion Efficacy Therapy, and a control group. The study was conducted in three phases: pre-test, post-test, and two-month follow-up. The statistical population consisted of all patients diagnosed with IBS who referred to gastroenterology clinics and treatment centers in Isfahan during the winter of 2025. A total of 60 patients were purposefully selected based on inclusion criteria (20 participants per group) and then randomly assigned to the three groups using simple random sampling (lottery method). The selection of 20 participants per group was based on the minimum recommended sample size of 15 per group in experimental studies.

Inclusion criteria included obtaining written informed consent from participants, being in the age range of 20 to 45 years, willingness to participate in the study, acceptance and commitment to the therapeutic group rules, absence of chronic psychological disorders such as bipolar disorder or schizophrenia, and not being under psychiatric treatment. Exclusion criteria included non-cooperation or unwillingness to continue participation in training sessions, failure to complete assignments, and absence from two or more therapy sessions. Ethical principles such as confidentiality, use of data solely for research purposes, full autonomy of hemodialysis patients to continue participation, and providing post-intervention training to the control group were strictly observed.

Data Collection

The *Perceived Suffering Scale*, developed by Schulz et al. (2010), contains 33 items and assesses three dimensions: physical suffering, psychological suffering, and existential suffering. Physical suffering includes two sections with nine items rated on a 4-point Likert scale (0 = never to 3 = always), resulting in a possible score range of 0 to 27. Higher scores indicate greater physical suffering. Psychological suffering includes 15 items, also rated on a 4-point Likert scale (0 = very low to 3 = very high), with a score range of 0 to 45. Higher scores indicate higher psychological suffering. Existential suffering consists of nine items rated similarly, with a score range of 0 to 27 (Moshak et al., 2021). Validity and reliability of the scale were confirmed by Schulz et al. (2010) in three African-American groups. Reported Cronbach's alpha coefficients were 0.63 for physical suffering, 0.90 for psychological suffering, and 0.86 for existential suffering. Subgroup reliability was confirmed for Whites (0.43, 0.87, 0.86 respectively) and Hispanics (0.60, 0.85, 0.83 respectively). In Iran, Babahasani et al. (2020) reported Cronbach's alpha coefficients of 0.85 (physical), 0.83 (psychological), 0.82 (existential), and 0.86 for the overall scale. In the present study, the overall Cronbach's alpha was 0.89.

To assess *Affective Capital*, the 20-item Affective Capital Questionnaire by Golparvar (2016) was used. This tool covers three domains: positive affect (10 items), psychological energy (5 items), and happiness (5 items) (16). Items are rated on a 5-point Likert scale from 1 (never) to 5 (always), with total scores ranging from 20 to 100. Higher scores reflect greater affective capital. Validity was confirmed using exploratory factor analysis with Varimax rotation, and reported Cronbach's alpha values ranged from 0.80 to 0.98 (Ghasemi Kaleh Masihi et al., 2021). Enayati and Golparvar (2018) reported convergent validity and Cronbach's alpha above 0.80. In this study, the Cronbach's alpha for the total questionnaire was 0.92.

Data collection proceeded as follows: after randomly assigning participants to the three groups (Suffering Management Training, Emotion Efficacy Therapy, and control), all participants completed the Life Suffering and Affective Capital Questionnaires at the pre-test phase. Then, each treatment group participated in group therapy sessions at a counseling and psychotherapy center. Following the intervention, participants from all three groups completed the post-test, and again two months later for the follow-up. Both interventions consisted of eight weekly sessions of 75 to 95 minutes, conducted by a therapist with over 10 years of experience. The control group received no treatment until the experimental interventions concluded.

The *Suffering Management Training Package* was developed specifically for this study and validated prior to use. Initially, 18 IBS patients were interviewed, and their therapeutic needs and suffering experiences were thematically analyzed using Braun and Clarke's (2006) method. The Content Validity Ratio (CVR) of this thematic analysis, calculated by three independent coders, was 1. Therapeutic techniques for each theme were extracted via conventional content analysis. A panel of six psychologists with over 10 years of clinical and educational experience developed the structure for the eight-session intervention. The compiled package was reviewed and revised by six domain experts, resulting in an inter-rater agreement coefficient of 0.948. The package was then piloted on eight IBS patients, confirming preliminary effectiveness.

Interventions

The *Suffering Management Training Protocol* consists of eight sessions, each targeting a specific dimension of suffering while gradually teaching coping skills across psychological, cognitive, existential, physical, social, and interpersonal domains.

- Session 1 introduces emotional and anxiety-related suffering, exploring the effects of negative mood, depression, and anxiety on symptom intensity.
- Session 2 addresses cognitive suffering, focusing on identifying and challenging dysfunctional thoughts.
- Session 3 continues with anxiety management and introduces mindfulness and meditation.
- Session 4 covers existential suffering, including meaning-making, loneliness, and feelings of emptiness.
- Session 5 delves into ontological suffering—perceived lack of freedom, helplessness, and unfulfilled life.
- Session 6 explores quality-of-life-related suffering and teaches physical and psychological self-care.
- Session 7 emphasizes relational health and environmental well-being through self- and other-care.
- Session 8 focuses on strengthening social bonds, overcoming isolation, and reviewing all sessions. The post-test was administered during this session, and follow-up coordination was conducted.

The *Emotion Efficacy Therapy Protocol* also includes eight sessions, integrating elements from ACT and DBT.

- Session 1 establishes the therapeutic alliance and introduces emotional awareness.
- Session 2 explains brain function in emotions, cognitive distortions, and emotional surfing techniques.
- Session 3 introduces the "monster on the bus" metaphor to promote choice-making between emotion and reaction.
- Session 4 provides relaxation, sensory activation, and mindful self-soothing exercises.
- Session 5 integrates value-based action with emotional exposure exercises.
- Session 6 focuses on replacing dysfunctional coping thoughts with adaptive alternatives.
- Session 7 teaches imagined exposure to real-life situations and value-based behavioral shifting.
- Session 8 includes a summary, feedback, appreciation, post-test administration, and coordination for follow-up.

Data analysis

For statistical analysis, preliminary assumptions were examined including normality (Shapiro-Wilk test), homogeneity of error variance (Levene's test), equality of covariance matrices (Box's M test), and sphericity (Mauchly's test). Mean and standard deviation were reported, followed by repeated measures ANOVA and Bonferroni post hoc tests. Analyses were conducted using SPSS version 26. The significance level was set between $p < .05$ and $p < .001$.

Findings and Results

The three research groups were compared in terms of age, education, gender, and duration of IBS using the Chi-square test. The results of the demographic variables are presented in Table 1.

Table 1. Comparison of Group Frequencies Based on Demographic Variables

Variable and Levels	Suffering Management Training Group Frequency (%)	Emotion Efficacy Therapy Group Frequency (%)	Control Group Frequency (%)	Chi-Square Value (p-value)
Age				
Up to 30 years	10 (50)	7 (35)	11 (55)	1.74 (0.42)
31 years and older	10 (50)	13 (65)	9 (45)	
Education				5.71 (0.22)
Up to diploma	15 (75)	10 (50)	12 (60)	
Associate and bachelor's	1 (5)	7 (35)	4 (20)	
Master's and Ph.D.	4 (20)	3 (15)	4 (20)	
Gender				2.13 (0.34)
Female	16 (80)	12 (60)	15 (75)	
Male	4 (20)	8 (40)	5 (25)	
Duration of IBS				3.54 (0.17)
Up to 5 years	13 (65)	15 (75)	18 (90)	
6 years and more	7 (35)	5 (25)	2 (10)	

As seen in Table 1, there are no statistically significant differences between the three research groups in demographic variables.

In Table 2, the means and standard deviations of life suffering and affective capital are presented separately for the three research groups across the three phases: pre-test, post-test, and follow-up.

Table 2. Mean and Standard Deviation of Life Suffering and Affective Capital in the Research Groups Across Three Time Points

Variable	Time	Suffering Management Training		Emotion Efficacy Therapy		Control Group	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Life Suffering	Pre-test	125.50	7.08	126.70	5.78	127.85	6.67
	Post-test	116.80	5.81	117.55	5.12	122.55	6.84
	Follow-up	114.35	6.27	115.40	6.96	121.90	7.04
affective Capital	Pre-test	51.15	5.93	46.25	5.32	51.05	5.34
	Post-test	60.40	6.26	53.60	6.06	51.00	5.76
	Follow-up	62.80	8.21	53.85	5.92	50.70	6.03

As shown in Table 2, the means of life suffering and affective capital indicate that both the Suffering Management Training group and the Emotion Efficacy Therapy group demonstrated greater changes in the post-test and follow-up phases compared to the control group.

Before performing repeated measures ANOVA, the results of the Shapiro–Wilk test for the variables of life suffering and affective capital indicated that both variables were normally distributed ($p \geq 0.05$). Levene's test results also confirmed the homogeneity of variances among the groups for both variables ($p \geq 0.05$). Additionally, Box's M test results showed equality of the variance–covariance matrix for both life suffering and affective capital ($p \geq 0.05$).

However, the results of Mauchly's test of sphericity for both variables were significant, indicating that the assumption of sphericity was not met. Therefore, the Greenhouse-Geisser correction was applied to adjust the degrees of freedom for time and the time × group interaction. The results of the repeated measures ANOVA for life suffering and affective capital are presented in Table 3.

Table 3. Results of Repeated Measures ANOVA for Life Suffering and Affective Capital

Source of Effect	Sum of Squares	df	Mean Square	F	Significance	Partial Eta Squared	Power
Life Suffering							
Within-Subjects							
Time	3044.54	1.43	2127.13	203.79	.001	.79	1.00
Time × Group Interaction	195.22	2.86	68.20	6.53	.001	.19	.96
Error (Time)	851.57	81.58	10.44	-	-	-	-
Between-Subjects							
Group	919.88	2	459.94	4.21	.02	.13	.72
Error	6220.43	57	109.13	-	-	-	-
Affective Capital							
Within-Subjects							
Time	1414.74	1.46	968.01	140.82	.001	.71	1.00
Time × Group Interaction	845.96	2.92	289.41	42.10	.001	.60	1.00
Error (Time)	572.63	83.31	6.87	-	-	-	-
Between-Subjects							
Group	1986.41	2	993.21	9.61	.001	.25	.98
Error	5888.17	57	103.30	-	-	-	-

As shown in Table 3, for the variable of *life suffering*, in the within-subjects section, the effect of time ($F = 203.79$, $df = 1.43$, $p < .01$) and the time × group interaction ($F = 6.53$, $df = 2.86$, $p < .01$) were statistically significant. The partial eta squared for the time effect was .79 with a power of 1.00, and for the time × group interaction was .19 with a power of .96. This indicates that 79% and 19% of the variance in life suffering were due to the application of the independent variable (i.e., either the Suffering Management Training or Emotion Efficacy Therapy), which were confirmed with 100% and 96% statistical power, respectively.

Also, in the between-subjects section for the variable of life suffering ($F = 4.21$, $df = 2$, $p < .01$), the group effect was statistically significant. The partial eta squared for the group effect was .13 with a power of .72, indicating that the conducted ANOVA detected a significant difference—at least between one of the intervention groups and the control group—with 13% explained variance and 72% power.

For *affective capital*, the within-subjects effects for both time ($F = 140.82$, $df = 1.46$, $p < .01$) and the time × group interaction ($F = 42.10$, $df = 2.92$, $p < .01$) were also statistically significant. The partial eta squared values were .71 and .60, respectively, both confirmed with statistical power of 1.00. This shows that 71% and 60% of the variance in affective capital were due to the independent variable interventions.

Furthermore, in the between-subjects section for affective capital ($F = 9.61$, $df = 2$, $p < .01$), the group effect was statistically significant. The partial eta squared was .25 with a power of .98, indicating that 25% of the variance in affective capital could be attributed to group differences, and this was detected with high confidence.

Table 4. Bonferroni Post-Hoc Test Results for Time and Group Comparisons on Life Suffering and Affective Capital

Variable	Row	Reference Group	Comparison Group	Mean Difference	Std. Error	Significance
Life Suffering	1	Pre-test	Post-test	7.72	0.53	.001
	2		Follow-up	9.47	0.60	.001
	3	Post-test	Follow-up	1.75	0.31	.001
	4	Suffering Management Training	Emotion Efficacy Therapy	-1.00	1.91	1.00
	5		Control Group	-5.22	1.91	.02
	6	Emotion Efficacy Therapy	Control Group	-4.22	1.91	.09
affective Capital	1	Pre-test	Post-test	-5.52	0.33	.001
	2		Follow-up	-6.30	0.52	.001
	3	Post-test	Follow-up	-0.78	0.36	.10
	4	Suffering Management Training	Emotion Efficacy Therapy	6.88	1.86	.001
	5		Control Group	7.20	1.86	.001
	6	Emotion Efficacy Therapy	Control Group	0.32	1.86	1.00

As shown in Table 4, for the variable *life suffering*, at the group level, only the Suffering Management Training group showed a statistically significant difference from the control group ($p < .01$), while there was no significant difference between the Suffering Management Training and Emotion Efficacy Therapy groups ($p > .05$). According to the means reported in Table 2, Suffering Management Training demonstrated relatively higher effectiveness in reducing life suffering compared to Emotion Efficacy Therapy.

For the variable *affective capital*, at the group level, there were significant differences between the Suffering Management Training group and both the Emotion Efficacy Therapy group and the control group ($p < .01$). However, there was no significant difference between the Emotion Efficacy Therapy group and the control group ($p > .05$). Based on the means in Table 2, it is evident that Suffering Management Training was more effective than Emotion Efficacy Therapy in enhancing affective capital.

Discussion and Conclusion

The present study aimed to compare the effectiveness of Suffering Management Training and Emotion Efficacy Therapy on life suffering and affective capital in patients with Irritable Bowel Syndrome (IBS). The results of the repeated measures ANOVA and Bonferroni post-hoc tests showed that Suffering Management Training had a significantly greater impact on reducing life suffering and increasing affective capital compared to Emotion Efficacy Therapy. The results also indicated no significant differences between the Emotion Efficacy Therapy group and the control group on the studied variables.

To explain the findings related to the reduction in life suffering through Suffering Management Training, reference can be made to the integrative structure of this intervention. The program developed in this study addressed various dimensions of suffering, including emotional, cognitive, social, existential, and quality-of-life-related suffering, thereby targeting diverse facets of the suffering experience. Specifically, the use of mindfulness techniques, cognitive restructuring, emotion regulation skills, and logotherapy enabled patients not only to cope with suffering but also to assign new meaning to it. This finding aligns with previous studies confirming the efficacy of existential and meaning-based therapies in reducing IBS symptoms (21, 29). Moreover, the study by (24) clearly highlights that the experience of suffering in chronic patients is multidimensional and demands comprehensive interventions—an approach central to the present study.

In addition, the findings on affective capital revealed that Suffering Management Training significantly increased affective capital, whereas Emotion Efficacy Therapy did not yield such effects. affective capital, comprising positive affect, psychological energy, and happiness, is enhanced by reducing depression, anxiety, and perceived meaninglessness (14, 15). Through training in physical and psychological self-care, social connection, and meaning enhancement, the intervention successfully supported the development of affective capital components. The study by (17) also demonstrated that skills-based emotional training can improve emotional adjustment and increase affective capital. Furthermore, studies by (18) and (16) emphasize the importance of multidimensional educational approaches in enhancing affective capital.

On the other hand, the relatively lower effectiveness of Emotion Efficacy Therapy on the study's target variables raises important questions regarding the scope of its impact within the specific population of IBS patients. While this therapy has shown positive results in other populations—such as anxious nurses or depressed elderly individuals (27, 28)—the current findings suggest it may be insufficient for this particular group. A likely explanation is that Emotion Efficacy Therapy does not directly address existential or social suffering, instead focusing primarily on intrapsychic emotion regulation. This interpretation is supported by the findings of (30), which reported the efficacy of emotion-focused therapy only for certain somatic symptoms.

Another significant finding of this study is the observed difference between Suffering Management Training and Emotion Efficacy Therapy in terms of affective capital. Although both interventions are designed to foster emotional and cognitive empowerment, Suffering Management Training seems to offer a more effective pathway to enhancing affective capital by addressing the existential, meaningful, and social dimensions of patients' lives. This finding is consistent with studies by (31) and (26), which report the positive impact of meaning-oriented and mindfulness-based approaches on psychological components.

The final conclusion of the present study supports that Suffering Management Training, with its multilayered and comprehensive structure, can serve as an effective intervention to reduce life suffering and enhance affective capital in patients with IBS. By covering psychological, cognitive, social, and spiritual dimensions, this intervention outperformed Emotion Efficacy Therapy in improving the psychological quality of life for these patients. This underscores the need for greater attention to designing integrated and problem-centered treatments for populations with chronic disorders (5, 22).

One of the main limitations of this study was its focus on a specific group of IBS patients within the age range of 20 to 45 years. This limits the generalizability of the findings to other age groups, particularly older adults and adolescents. Furthermore, the instruments used to measure the variables were self-report questionnaires, which may be subject to social desirability bias or limited self-awareness. The lack of qualitative data—such as interviews or behavioral content analysis—also restricted deeper insight into participants' lived experiences.

Future studies are encouraged to use mixed-methods designs (quantitative and qualitative) to evaluate the effectiveness of Suffering Management Training in various age groups and in the context of other chronic illnesses. Additionally, comparing this intervention's effectiveness with other psychotherapeutic approaches such as schema therapy, mindfulness-based interventions, or Acceptance and Commitment Therapy (ACT) could offer new directions in the design of psychological interventions for chronic patients. Examining the

long-term outcomes of these interventions across extended timeframes could also clarify whether their effects are sustained or short-lived.

Based on the findings of this study, it is recommended that medical and psychotherapy centers implement interventions such as Suffering Management Training as complementary treatments alongside medical care for IBS patients. Furthermore, training psychologists and counselors to understand the structure of suffering in chronic patients and equipping them with practical skills for suffering management could enhance the quality of psychological care. Developing culturally adapted versions of this training for specific populations—such as the elderly or children—could also be a critical step toward promoting mental health equity.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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